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Wendy W. Koba P.O. Box 556 Springtown, PA 18081			DEHIGHAN, QUEENIE S	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIEL SCOTT HOMA

Appeal 2009-005121
Application 10/687,454
Technology Center 1700

Decided: February 24, 2010

Before BEVERLY A. FRANKLIN, LINDA M. GAUDETTE, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's decision finally rejecting claims 1-20 (Final Office Action ("Final"), mailed Mar. 1, 2007, 1), the only claims pending in the application. (Appeal Brief

("App. Br."), filed Aug. 28, 2007, 1.) We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

"The present invention relates to a hydrogen resistant optical fiber formation technique and, more particularly, to the initial use of an unsintered soot, subjected to a treatment with a metal halide vapor, to eliminate the formation of Si-OH when exposed to hydrogen at various pressures and temperatures." (Specification ("Spec."), filed Oct. 16, 2003, [0001].)

Representative independent claim 1 is reproduced below:

1. A method of making an optical preform, the method comprising the steps of:

- a) providing an optical preform tube;
- b) depositing a porous, unsintered soot layer within the inner surface of said tube;
- c) exposing the porous, unsintered soot layer to a flow of a metal halide in an oxygen-free ambient for a period of time sufficient to eliminate the presence of excess oxygen defects in said soot layer;
- d) sintering the metal halide-treated soot layer in an oxygen-free ambient to form an amorphous glass layer; and
- e) collapsing said sintered preform tube of step d) to form a solid core optical fiber preform.

The Examiner relies on the following evidence in rejecting claims 1-20 (Examiner's Answer ("Ans."), mailed Jan. 23, 2008, 3):

Sarkar	4,310,340	Jan. 12, 1982
Herron	4,627,160	Dec. 09, 1986
Araujo	5,735,921	Apr. 07, 1998
Oh	6,053,013	Apr. 25, 2000

Antos	2002/0150365 A1	Oct. 17, 2002
Zhang	6,532,774 B2	Mar. 18, 2003
Homa	2003/0213268 A1	Nov. 20, 2003
Ishikawa (as translated)	JP 02180729	Jul. 13, 1990

The Examiner maintains (Ans. 3-7), and Appellant requests review of (App. Br. 3-4), the following grounds of rejection:

1. claims 1-4, 6, 7, 10-12, and 14 under 35 U.S.C. § 102(e) as anticipated by Antos;
2. claims 5, 8, and 9 under 35 U.S.C. § 103(a) as unpatentable over Antos, as applied to claim 1, in view of Zhang;
3. claims 13 and 15 under 35 U.S.C. § 103(a) as unpatentable over Antos, as applied to claim 1, in view of Ishikawa;
4. claim 16 under 35 U.S.C. § 103(a) as unpatentable over Antos, as applied to claim 1, in view of Homa;
5. claim 17 under 35 U.S.C. § 103(a) as unpatentable over Antos, as applied to claim 1, in view of Oh;
6. claim 18 under 35 U.S.C. § 103(a) as unpatentable over Antos, as applied to claim 1, in view of Sarkar; and
7. claims 19 and 20 under 35 U.S.C. § 103(a) as unpatentable over Antos in view of Ishikawa, Araujo, and Herron.

ISSUE

The following issue is dispositive of the appeal as to all seven grounds of rejection: has Appellant identified error in the Examiner's finding that Antos discloses a step of sintering the soot layer in an oxygen-free ambient or environment as recited in claims 1 and 19, respectively? (*See* App. Br. 4-7; Ans. 8.)

We answer this question in the affirmative.

FINDINGS OF FACT

Claims 1 and 19, the sole independent claims, are directed to “[a] method of making an optical preform.” Both claims include a sintering step, reproduced below:

“d) sintering the metal halide-treated soot layer in an oxygen-free ambient to form an amorphous glass layer”
(claim 1); and

“c) sintering the soot layer in an oxygen-free environment of SiCl₄, He and H₂ to form an amorphous glass layer” (claim 19).

According to Appellant, “[t]he discovery of the present invention is resident in the finding that by using an oxygen-free ambient, the defects may be eliminated from the soot layer.” (Br. 4.) Appellant contends that Antos fails to disclose this critical aspect of the claimed invention. (*Id.*)

The Examiner relies on Antos paragraphs [0017], [0030], and [0033] for a teaching of Appellant’s claimed sintering step. (Ans. 4.) Antos paragraphs [0017], [0030], and [0033] do not explicitly state that sintering is conducted in an oxygen free ambient/environment.

Antos paragraphs [0030] and [0033] generally describe flowing a metal halide gas over the soot preform prior to sintering.

In paragraph [0017], Antos describes a step of exposing a soot preform to a metal halide gas according to an embodiment of the invention. Following this description, Antos states “[a]s is known in the art, the succeeding process steps can include sintering the soot.”

In paragraph [0020], Antos describes “an alternative embodiment . . . employing a metal halide precursor (GeCl₄) during soot deposition, and employing less than a stoichiometric amount of oxygen in the reaction chamber.”

In paragraph [0016], Antos describes a preferred embodiment in which GeCl₄ is flowed around the soot preform. Antos states “that in the novel method described herein, the metal halide gas is preferably in excess relative to oxygen.” (Para. [0016].)

The Examiner also relies on Antos EXAMPLE 2 for a teaching of Appellant’s claimed sintering step, contending that the flow of “metal halide is in an ambient of He, which is an oxygen-free ambient.” (Ans. 8.)

In EXAMPLE 2, Antos describes treating a preform “with metal halide gas in accordance with the invention.” (Para. [0042].) In EXAMPLE 2, a flow of GeCl₄ is added to a flow of He around a preform in a furnace heated to 1000° C (para. [0043]), followed by sintering using a process known in the art (para. [0043] (referencing EXAMPLE 1); para. [0036]).

PRINCIPLES OF LAW

“To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently.” *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Therasense, Inc. v. Becton, Dickinson and Co.*, 2010 WL 254904 at *5 (Fed. Cir. 2010) (citations omitted). Cf. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545

F.3d 1359, 1369 n.5 (Fed. Cir. 2008) (“[T]he court must, while looking at the reference as a whole, conclude whether or not that reference discloses all elements of the claimed invention arranged as in the claim.”).

ANALYSIS

Appellant has persuasively argued that Antos’ disclosure, as a whole, does not support the Examiner’s finding of a step of sintering the soot layer in an oxygen-free ambient/environment as recited in claims 1 and 19.

Although Antos does not expressly disclose the presence of oxygen in the EXAMPLE 2 sintering step, the above-cited paragraphs indicate that Antos contemplates the use of conventional sintering processes and sintering in an environment in which oxygen is reduced, though not absent. In this regard, we note that Altos explicitly indicates that a known sintering process is utilized in EXAMPLE 2. The Examiner has not identified any known prior art sintering processes which exclude the presence of oxygen.

CONCLUSION

Appellant has identified error in the Examiner’s finding that Antos discloses a step of sintering the soot layer in an oxygen-free ambient/environment as recited in claims 1 and 19. The Examiner relies on this unsupported finding in each of the stated grounds of rejection. Therefore, we reverse all seven grounds of rejection.

REVERSED

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WENDY W. KOBA
P.O. BOX 556
SPRINGTOWN, PA 18081